DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
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> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-4, 7-13, and 15 rejected under 35 U.S.C. 102 (e) as being anticipated by Walton et al (US 2004/0082356).

3. Regarding claim 1, Walton discloses random access data transmission system using OFDMA (Orthogonal Frequency Division Multiple Access, see abstract line 10 and 2) between a mobile station (e.g. UT) and a base station (e.g. AP, see figure 1), wherein the mobile station comprising:

a resource selector (e.g. controller, item 780y, see figure 7) for selecting a preamble transmission channel and a code- related resource for transmitting a preamble for a random access to the base station (See paragraph [0217], lines 6-9);

a preamble transmitter (e.g. TX Data Processor, item 790y, see figure 7) for using the transmission resource information selected by the resource selector to generate a preamble and transmitting the preamble to the base station through a preamble transmission channel (See [0217], lines 9-13);

a preamble access grant processor (This element is inherent since the function disclosed in the passage cited below is performed) for receiving acknowledgment or non- acknowledgment

information including a scheduling ID (e.g. MAC ID, see table 14, between [0140] and [0141]) in the preamble access grant from the base station according to the transmission by the preamble transmitter, and processing the same (See [0140]); and

a data transmitter (e.g. TX Data and special Processor, items 792y and 790y, see figure 7) for transmitting random access data through a data transmission channel (e.g. RACH in table 3 on page 6, note that random access transmission channel could be also RCH depending on the assigned channel by the AP or base-station sent on the FCCH in BCH message) of the scheduling ID (e.g. MAC ID, see table 6) assigned to the mobile station based on the information processed by the preamble access grant processor (SEE [0118]).

4. Considering claim 2, Walton teaches the random access data transmission system of claim 1, wherein the preamble transmitter fixes a specific slot with a preamble transmittable time from among an uplink frame comprising a plurality of slots (See figure 3B), randomly selects one of sub-channels of a radio resource of the specific slot (See [0643], lines 3-6), uses a code which is distinguishable from other codes (See [0042], lines 4-7) , and transmits the preamble generated through the selection of the sub-channel and usage of the code (See [0107], lines 5-6).

5. Considering claim 3, Walton teaches the random access data transmission system of claim 2, wherein the slots of the uplink frame except the slot which is fixed with the preamble transmittable (See figure 5E, item 532b, note that even though the preamble slot is variable, it is fixed at a given time until the conditions and environmental of transmission varies in accordance with Walton's invention) time are classified as a control information transmission

channel and a data transmission channel (See figure 14B, FCCH is a forward control channel, RCH is the reverse channel, and RACH is the random access channel which carries uplink data to the AP or base-station) and random access data are loaded on part of the data transmission channel and transmitted to the base station (RACH slot is the data transmission channel carrying random access packets, see figure 14B).

6. Regarding claim 4, Walton discloses the random access data transmission system using OFDMA (orthogonal frequency division multiple access) between a mobile station and a base station wherein the base station comprising:

a preamble receiving processor for receiving a preamble from the mobile station and extracting corresponding preamble information (e.g. Controller, item 730, see figure 7);

an ID manager for assigning a specific scheduling ID to each mobile station and managing the specific scheduling ID (e.g. MAC ID) so that the mobile station may use a assigned data transmission channel (The ID manager is inherent since the function performed by this element is disclosed, see [0122]);

a scheduler (See figure 7, item 734) for scheduling a data transmission time, and a transmission quantity of the mobile station together with the scheduling ID (e.g. MAC ID) assigned to the mobile station by the ID manager according to channel environments and requirements of the mobile stations (See [0219]);

an access grant (See [0553] lines 1-3) processor for using the preamble information (See [0552] lines 6-9) of the preamble receiving processor and the scheduling ID of the ID manager to determine an acknowledgment/non-acknowledgment status, and transmitting preamble access

grant configuring information including the scheduling ID to the mobile station (See [0650] and [0651] lines 1-6); and

a data receiving processor (e.g. RX Data Processor, item 742, see figure 7) for receiving the random access data (See abstract line 10) through a assigned data transmission channel from the mobile station according to a transmission result of the access grant processor, and processing them (See [0218]).

7. With respect to claim 8, Walton discloses the random access data transmission system of claim 7, wherein the specific slot is assigned for synchronization (e.g. frame counter, see [0109], lines 1-2 and table 5, note that the synchronization also done by means of the RACH acknowledgment bit slot as shown in table 5) and base station search (the mobile station is to search based on the assigned channel and ID of the AP, see table 5) and other slots are assigned for downlink traffic slots in the downlink frame (See table 5).

8. Consider claim 9, Walton discloses the random access data transmission system of claim 8, wherein the downlink traffic slots (having BCH, FCCH, and FCH, see figure 3B) are classified as a data traffic transmission time (e.g. BCH slots, see table 3) and a control signal traffic transmission time (e.g. resource allocation slot or FCCH slot, see table 3) so that the random access data be divided into part of each slot and then be transmitted (See slots RCH 340 and RACH 350 in figure 3B).

9. Consider claim 10, Walton discloses the random access data transmission method using

OFDMA (Orthogonal Frequency Division Multiple Access, see abstract line 10 and 2) between a mobile station (e.g. UT) and a base station (e.g. AP, see figure 1), wherein the mobile station comprising:

(a) selecting a preamble transmission channel and a transmission radio resource related (the selection is carried by the controller, item 780y, see figure 7) to a code used for transmitting a preamble for a random access to the base station (See paragraph [0217], lines 6-9);

(b) using the transmission radio resource selected in (a) to generate a preamble and transmitting the preamble to the base station (See [0217], lines 9-13);

(c) receiving preamble access grant configuring information including a scheduling ID (e.g. MAC ID, see table 14, between [0140] and [0141]) assigned by the base station and acknowledgment/ non-acknowledgment information with respect to the preamble transmitted in (b) (See table 7, RACH acknowledgment of receiving the preamble and control parameters, see also [0112]), and checking a successful status of transmission of the preamble, and the scheduling ID (See [0650], note that scheduling ID or MAC ID is in the preamble); and

(d) allowing the mobile station to check an assignment of the data transmission channel (See control fields in table 6) by using the mobile station's scheduling ID included in a control channel (See table 6, MAC ID is in the FCCH which is the control channel) according to a checking result in (c); and transmitting random access data to the base station through the data transmission channel assigned to the mobile station (e.g. RACH in table 3 on page 6, note that random access transmission channel could be also RCH depending on the assigned channel by the AP or base-station sent on the FCCH in BCH message).

10. Consider claim 11, Walton discloses the random access data transmission method of claim 10, wherein (d) (the step as mentioned above is disclosed in Walton's invention) comprises allowing the mobile station to extract transmission control information (e.g. the control information sent in control channel FCCH from the base-station, see table 8) including timing (e.g. RCH timing, see table 8), a frequency (e.g. data transfer rate of RCH, see table 8), and power (e.g. RCH power control, see table 8) through the access grant information received in (c) (the step as mentioned above is disclosed in Walton's invention), and transmitting random access data by using the transmission control information (e.g. by using the information in FCCH the MS sends accordingly in RCH or the random access reverse channel, the random data to the base-station or AP, see [0169]).

11. Regarding claim 12, Walton discloses the random access data transmission method of claim 10, wherein (b) (the step as mentioned above is disclosed in Walton's invention) comprises fixing a specific slot with a preamble transmittable time (See [0146], line 12-13 from among an uplink frame (e.g. RACH is an uplink frame, see [0144]) including a plurality of slots (See the uplink frame in figure 3B), and transmitting a preamble generated by randomly selecting any one of the radio resources of the corresponding slot and using a code (e.g. modulation the preamble according to the random access transmission scheme, see claim 144) which is distinguishable from other codes (See claim 77, note that pilot information are part of the preamble message).

12. Regarding claim 13, Walton discloses the random access data transmission method using OFDMA (Orthogonal Frequency Division Multiple Access, see abstract line 10 and 2) between a

mobile station (e.g. UT) and a base station (e.g. AP, see figure 1), the procedure of base station comprising:

(a) allowing the base station to receive and analyze a preamble transmitted from the mobile station (See. [0552]), and assigning a specific scheduling ID (See [0122]) when the mobile station can be scheduled (See [0328], lines 6-9);

(b) determining an acknowledgment or a non-acknowledgment (See [0140], lines 5-10) and forming preamble access grant configuring information according to the preamble information analyzed in (a) and an assigned status of the scheduling ID (See table 14, the MAC ID is reserved for a particular MS), and transmitting the preamble access grant configuring information to the mobile station (See [0650] and [0651] lines 1-6);

(c) allowing the base station to schedule (See [0328], lines 6-9) a data transmission time (e.g. RCH length in BCH PDU, see Table 5), a transmission channel (e.g. the assigned transmission channel, see Control Fields in Table FCCH message), and a transmission quantity of each mobile station t(e.g. RCH rate, which is the transmission rate for transmitting random access data at a given time) together with the scheduling ID assigned to each mobile station (See MAC Id in Table 8, also [0122]) according to the mobile station's channel environments and requirements (See [0011], lines 7-10 and see also [0012], lines 7-9), and notifying the mobile station of scheduled results (See [0663], note the notification is done by transmission of the FCH message or PDU); and

(d) receiving random access (see abstract, line 10) data from the mobile station corresponding to the scheduling ID through the data transmission channel determined in (c), and processing the random access data (See [0218] and [0219]).

13. Regarding claims 7 and 15, Walton discloses the random access transmission system in accordance with claims 4 and 13 respectively, wherein the access grant processor loads the preamble access grant (See [0552] lines 6-9 and [0553] lines 1-3) configuring information on a specific slot of a downlink frame (downlink frame or BCH message, the slots being parameters in table 5 on page 8) comprising a plurality of slots, and transmits the same to the mobile station (See figure 3B).

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claim 5 rejected under 35 U.S.C. 103 (a) as being unpatentable over Walton in view of Roberts (US 7,248,659).

4. Regarding claim 5, Walton discloses the random access data transmission system of claim 4, wherein the preamble information (the preamble contain MIMO information, see figure 5A) of the preamble receiving processor includes information on a code (See [0107], lines 4-6), timing (See [0105], lines 1-4, note that the preamble contains beacon pilot and MIMO pilot information, see figure 5A). Walton further discloses that information of power used for transmitting the preamble by the mobile station is included in the control channel in the BCH message to the mobile station for power assignment. Walton does not teach that the power information is included in the preamble received. However, Roberts discloses transmitting AGC command or power information in the preamble in three different modes depending on the desired conditions (abstract). It would have been obvious to one of ordinary skill in the art to migrate power information from the FCCH of BCH in Walton's invention to the preamble as taught by Roberts because in certain conditions where power resources are scarce such as in battery powered handheld devices, sum of the averaged power transmissions per charge could be lowered by lowering according to SNR criteria the transmission power even in the preamble slot periods, thus optimizing power consumption.

5. Claims 6 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walton.

6. Regarding claims 6 and 14, Walton discloses the random access data transmission system in accordance with claims 4 and 13 respectively, wherein the ID manager recovers the scheduling ID (As mentioned above upon reception of the messages, further recovery is done by the controller and scheduler, see [0218] and [0219]) assigned to the mobile station. Walton does not explicitly teach that the scheduling ID assigned to the MS is recovered when the data receiving processor finishes reception of the random access data. However, the examiner takes official notice that it is well known in the art that the demodulation in accordance with said transmission scheme is performed to the message sent by the MS as a whole. In another words after the transmission of the burst response of the MS, the base-station receives the response and accordingly demodulates the signal to recover the identification information of the MS contained in the message; the slot of the MAC ID recovery requires that the reception process is complete. It would have been obvious to one of ordinary skill in the art to add said limitation to Walton's disclosure because the feature allows proper recovery of the MS ID, and thus avoids uplink/downlink transmission errors.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Fishler et al (US 2005/0105505) discloses a preamble generator for OFDM communication between mobile stations and base-stations. Ma et al disclose in their published application (US 2004/0246998) a similar communication scenario. Sjoberg et al (US 7,023,826) teaches a control unit for communication between a mobile station and access point wherein the control unit has a scheduler performing function similar to that of the applicant's disclosure. Suh et al (US 2004/0109405) is another prior art that implements a method for generating preamble

sequence in OFDM communication. Moreover, Eom et al (US 2005/0041573), Laroia et al (US 6,819,930), Engstrom et al (US 5,909,436), and Park et al (US 6,967,935) are also related art. Narvinger et al (US 6,381,229) teaches random access techniques for transmitting a preamble in an uplink common physical channel, the preamble is for synchronizing the communication between a base-station and mobile station.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ISSAM CHAKOUR whose telephone number is (571)270-5889. The examiner can normally be reached on Monday-Thursday (7:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rafael Pérez-Gutiérrez can be reached on 571-272-7915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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